IMMEDIATE LOADING OF A MAXILLARY FULL-ARCH REHABILITATION SUPPORTED BY BASAL AND CRESTAL IMPLANTS

Published by IF Publishing, Germany
Case Report

Immediate loading of a maxillary full-arch rehabilitation supported by basal and crestal implants

AUTHOR:
Henri Diederich, Dentist
51, av. Pasteur
LU 2311 Luxembourg

Phone: +35 222581531
E-mail: hdidi@pt.lu

ABSTRACT

The present article discusses the case of a 54-year-old female patient who was referred to our office for treatment with dental implants. The initial examination revealed that her dentition was in a desolate state, including hopeless residual teeth and a mobile existing bridge. Even though the patient had been highly skeptical, her previous dentist treated the case with a complete denture. This solution fell short of adequately meeting the patient’s needs. She failed to adapt to the removable restoration and struggled with a gag reflex. Severe bone atrophy was observed distal to sites 14 and 24. The resorption was progressing from a cranial and a caudal direction. This was compounded by the presence of an extremely narrow alveolar ridge along sites 13 to 23, which was not going to allow for any screw-type implants to be used unless extensive bone grafting was performed. The patient was adamant that an additional surgical procedure for bone augmentation was out of the question. This attitude was based on negative experience reported by some friends. Rather than undergoing bone augmentation, she would have abandoned her plan of having implants inserted, carrying on with her denture instead despite all the problems involved, had we not offered a treatment plan without bone augmentation.

KEYWORDS
Basal implants, immediate loading, jaw atrophy, tuberopterygoid implants

INTRODUCTION

The present article discusses the case of a 54-year-old female patient who was referred to our office for treatment with dental implants. The initial examination revealed that her dentition was in a desolate state, including hopeless residual teeth and a mobile existing bridge. Even though the patient had been highly skeptical, her previous dentist treated the case with a complete denture. This solution fell short of adequately meeting the patient’s needs. She failed to adapt to the removable restoration and struggled with a gag reflex. Severe bone atrophy was observed distal to sites 14 and 24. The resorption was progressing from a cranial and a caudal direction. This was compounded by the presence of an extremely narrow alveolar ridge along sites 13 to 23, which was not going to allow for any screw-type implants to be used unless extensive bone grafting was performed. The patient was adamant that an additional surgical procedure for bone augmentation was out of the question. This attitude was based on negative experience reported by some friends. Rather than undergoing bone augmentation, she would have abandoned her plan of having implants inserted, carrying on with her denture instead despite all the problems involved, had we not offered a treatment plan without bone augmentation.
PROCEDURE

After the first information and counseling session, the patient immediately asked to have appointments scheduled for implant placement. All treatment and follow-up appointments were immediately scheduled. The existing denture was used both for bite registration and to take a silicone impression, which provided the basis for implementing a temporary fixed restoration immediately after implant placement. Vestibular and palatal anesthesia was applied. A mild sedative was administered. Betadine was used for local disinfection. Generous incisions (18–11 and 21–28) were performed and flaps reflected in palatal and vestibular directions, with exposure of the palatal artery. This approach also enabled the clinician to visualize precisely the morphology of the tuberopterygoid region. The following implants were placed: one TPG screw (4.1 × 19 mm) at site 28, one EDDS 9/7 h4 implant at site 24, and one EDDDS 7 h6 implant at site 23. Due to their narrow transmucosal profile (approximately 2 mm), basal implants of the BOI type can frequently be placed in areas that would otherwise require bone splitting or augmentation. For wound closure, we use 3.0 silk or other non-resorbable materials. The threads are used during the first two postoperative days. We therefore like to use silk sutures, as they are durable and amenable to knotting. Subsequently, the jaw segment 11 to 18 was prepared, including palatal and vestibular reflection of a large flap. A TPG screw like the one at site 28 (4.1 19 mm) could also be placed at site 18. The same implants could be used on the contralateral side as well. All maxillary implants were placed in a single surgical procedure lasting around 90 minutes. Immediately after the surgical phase of treatment, an anesthetic was once again injected on the vestibular and palatal aspects for optimal relief of cellular stress. In addition, Celeston Chronodose 2 ml was injected intramuscularly into the vestibulum to mitigate pain and swelling. Impression copings were inserted for the impression in a slightly viscous material (Impregnum). Good results have been obtained with this material due to its high dimensional stability and optimal consistency (will not flow into wounds). Then the tuberosity screws were covered with healing caps. Note that these must not be tightened firmly. A facebow was used for recording to allow mounting the casts in an adjustable articulator. The second appointment took place 2 days after the procedure, including suture removal and a framework try-in. Another bite record was obtained with the framework in place, and an orthopantomograph was taken. Radiographs of this type, however, are not mandatory, because the transosseous implant positions can be readily verified by visual inspection during surgery. A temporary resin bridge was used for initial restoration. Four days after the intervention, the ceramic bridge was inserted in a temporary fashion. Temp Bond was used on the cementable abutments and screw retention on the tuberosity screws.
DISCUSSION

The patient presented in this case report had been rejected as untreatable elsewhere. Nevertheless, we were able to deliver a fixed ceramic bridge to her in a matter of days. It remains to be seen whether gingival recession will occur that might require a new bridge. Our policy is to make financial concessions, should a need for refabrication arise, by charging only the additional laboratory costs while accepting a greatly reduced treatment fee. Adaptations to the gingival margin are unavoidable after immediate loading of implants. For this reason, immediate loading of implants can only be performed in sporadic cases. These are almost exclusively confined to the mandible and cannot include situations with implants immediately placed in fresh extraction sockets.

The case presented could not have been resolved with crestal implants alone. The available bone volume was minimal both vertically and horizontally. Since the patient insisted that bone grafting was not to be performed, treatment without basal implants would have been both impossible and a source of frustration for the patient and our office team alike.

One should be concerned about the fact that numerous “implantologists” had failed to offer an acceptable treatment plan. It took a long journey for the patient to find out about basal implant treatment as routinely performed in our office.

We have been discussing this case in great detail to inform general dental practitioners and “family dentists” about the excellent possibilities of combining basal with crestal implants. Based on this implant combination concept, treatment can be offered not only in the presence of inadequate bone volume but also if a bone graft procedure is not accepted by a patient. This may well be the case because augmentation procedures will almost invariably involve a waiting period during which the patient is left without teeth.

References available from the author.

Figure 1.
Panoramic view of the upper and the lower jaw before the implant placement.

Figure 2.
Panoramic view 6 months postoperative, showing well integrated and functionally loaded basal and crestal implants. The lower jaw remains to be reconstructed.
Educational Video Series

Maxillary Implant Placement

1 Crestal & Basal Implants
Order Nr. 6667

2 And Replacing REPLACE®
Order Nr. 6669

Each DVD contains approx. 20 minutes of oral surgery. With explanations in English and German language.

Euro 35,00

Please send your order via e-mail to: publishing@implantfoundation.org
www.implantfoundation.org

or via regular postage mail to:
International Implant Foundation
Leopoldstr. 116, DE-80802 München

Guide for Authors

ID publishes articles, which contain information, that will improve the quality of life, the treatment outcome, and the affordability of treatments.

The following types of papers are published in the journal:

- Full length articles (maximum length abstract 250 words, total 2000 words, references 25, no limit on tables and figures).
- Short communications including all case reports (maximum length abstract 150 words, total 600 words, references 10, figures or tables 3).
- Technical notes (no abstract, no introduction or discussion, 500 words, references 5, figures or tables 3).
- Interesting cases/lessons learned (2 figures or tables, legend 100 words, maximum 2 references).

Literature Research and Review articles are usually commissioned.

Critical appraisals on existing literature are welcome.

Direct submissions to: publishing@implantfoundation.org.

The text body (headline, abstract, keywords, article, conclusion), tables and figures should be submitted as separate documents. Each submission has to be accompanied by a cover letter. The cover letter must mention the names, addresses, e-mails of all authors and explain, why and how the content of the article will contribute to the improvement of the quality of life of patients.